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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,384	03/02/2005	Sang-Hea Shim	1455-050676	1698

28289 7590 07/13/2007  
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EXAMINER
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CONLEY, SEAN EVERETT

ART UNIT	PAPER NUMBER
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1744

MAIL DATE	DELIVERY MODE
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07/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/506,384	<b>Applicant(s)</b> SHIM ET AL.	
	<b>Examiner</b> Sean E. Conley	<b>Art Unit</b> 1744	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 December 2006 and 12 April 2007.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20, 22 and 23 is/are pending in the application.
- 4a) Of the above claim(s) 1-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20, 22 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                            |                                                                                         |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                           | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendments filed December 27, 2006 and April 12, 2007 have been received and considered for examination. Claims 1-20 and 22-23 are pending with claims 1-19 remaining withdrawn from consideration for being directed to a non-elected invention.

### ***Terminal Disclaimer***

2. The terminal disclaimer filed on December 27, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,478,972 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 20 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shim et al. (U.S. Patent No. 6,478,972 B1).

Regarding claim 20, Shim et al. discloses a method of controlling the growth of microorganisms, comprising the steps of: (a) preparing stabilized alkali or alkaline earth

metal hypochlorite by mixing a chlorine oxidant including alkali or alkaline earth metal hypochlorite with a stabilizer selected from the group consisting of acid amide derivatives of carbonic acids, carboxylic acids, amino acids, and sulfuric acids; (b) preparing a bromide ion source; and (c) sequentially or simultaneously introducing the stabilized alkali or alkaline earth metal hypochlorite prepared in step (a) and the bromide ion source prepared in step (b) into a habitat of microorganisms up to 0.1 to 10 ppm total halogen residual (see col. 3, line 61 to col. 4, line 15). Shim et al. further disclose that sodium hypochlorite ( $\text{NaOCl}$ ), which is an alkali or alkaline earth metal hypochlorite, is an example of a hypochlorite widely used to control microbial fouling in various types of aqueous systems including cooling water towers and swimming pools.

Shim et al. does not specifically disclose a stabilized alkali or alkaline earth metal hypochlorite having a pH of at least 11. However, Shim et al. does disclose that a pH modifier such as an alkali solution of sodium hydroxide can be added to the aqueous solution of alkali or alkali earth metal hypochlorite in order to modify and control the pH (see col. 8, lines 53-58).

Therefore, it would have been obvious, absent a showing of unexpected results, to modify the pH of the alkali or alkaline earth metal hypochlorite to a pH of at least 11 since Shim et al. disclose the use of pH modifiers, specifically sodium hydroxide, to modify and control the pH of the alkali or alkaline earth metal hypochlorite.

Furthermore, although a pH of 11 is not specifically recited for the stabilized alkali or alkaline earth metal hypochlorite, modifying the pH of the hypochlorite solution using the sodium hydroxide pH modifier disclosed would have been obvious at the time of the

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applicant's invention since it has been held that the use of optimum ranges discovered by routine experimentation is ordinarily within the skill of the art.

Regarding claim 22, Shim et al. discloses that the stabilized hypochlorite and the bromide ion source is added to a habitat of microorganisms up to 0.1 to 10 ppm total halogen residual (see col. 4, lines 5-15).

Regarding claim 23, Shim et al. discloses that the water system is selected from the group consisting of swimming pools, spas, cooling water towers, bleaching agents, recycling water systems, and water slides (see col. 8, lines 45-53).

### ***Response to Arguments***

5. Applicant's arguments, see page 3, filed December 27, 2006, with respect to the nonstatutory obviousness-type double patenting rejection have been fully considered and are persuasive. The double patenting rejection of claims 20 and 22-23 has been withdrawn in response to the filing of the terminal disclaimer.

6. Applicant's arguments, see pages 3-4, filed December 27, 2006, with respect to the rejection of claims 20 and 22-23 under 35 U.S.C. 103(a) have been considered but are moot in view of the new ground(s) of rejection. Upon further examination it became apparent that the cited reference of Shim et al. ('972) alone renders claims 20 and 22-23 obvious.

**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Conley whose telephone number is 571-272-8414. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Gladys Corcoran/  
Supervisory Patent Examiner  
Art unit 1744

July 6, 2007

*S.E.C.*

*J.E.C.*